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Docket No.: M&N-IT-449

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By: 

Date: November 3, 2004

UNITED STATES IN THE PATENT AND TRADEMARK OFFICE

Applic. No. : 10/667,260 Confirmation No: 6047
Applicant : Nikolaus Schunk et al.
Filed : September 19, 2003
Title : Receiving and Coupling Part for Opto-Electronic Transmission
and/or Reception Element
Art Unit : 2874
Examiner : Omar R. Rojas

Docket No. : M&N-IT-449
Customer No. : 24131

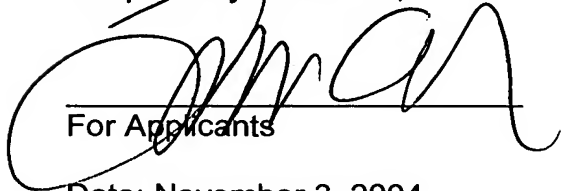
LETTER

Hon. Commissioner for Patents

Sir:

Enclosed please find a copy of the English translation of the International Preliminary Examination Report for the above-identified application. Please enter it into the file.

Respectfully submitted,


For Applicants

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Date: November 3, 2004

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PATENT COOPERATION TREATY

PCT/DE2002/0009C



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference IT449WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2002/000903	International filing date (day/month/year) 08 March 2002 (08.03.2002)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC G02B 6/42		
Applicant INFINEON TECHNOLOGIES AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 9 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 7 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 29 September 2003 (29.09.2003)	Date of completion of this report 02 June 2004 (02.06.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE2002/000903

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
pages 3-12, as originally filed
pages _____, filed with the demand
pages 1,2,2a, filed with the letter of 13 April 2004 (13.04.2004)
- ☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages 1-21, filed with the letter of 13 April 2004 (13.04.2004)
- ☒ the drawings:
pages 1/16-16/16, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

 International application No.
 PCT/DE 02/00903

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-21	YES
	Claims		NO
Inventive step (IS)	Claims	19	YES
	Claims	1-18, 20, 21	NO
Industrial applicability (IA)	Claims	1-21	YES
	Claims		NO

2. Citations and explanations

1. The document (D) cited in the international search report is referred to in the further procedure as D1.

The following additional documents D2 and D3 are likewise considered relevant and therefore are introduced by the examiner into the procedure:

D2: EP 0 053 483 A

D3: WO 98/06141 A

2. The present independent claim 1 does not meet the clarity requirements of PCT Article 6 with respect to the following points:

a) The expression "(receiving and coupling part with an) opening for introducing the carrier" does not make entirely clear the category to which the claim belongs (see PCT Examination Guidelines, paragraph III-4.1), since the claim as a whole claims the end product as it is after production is complete [i.e. an optoelectronic (OE) arrangement with a receiving and coupling part which contains the OE element with

its carrier and the surrounding casting compound], whereas part of this expression (i.e. the function "for introducing the carrier") appears rather to claim a method step for producing the end product. To overcome this lack of clarity, the questionable function "for introducing the carrier" is hereinafter simply ignored and the above-mentioned expression is restricted to the single word "opening".

b) The two expressions "one end of the recess" and "the other end of the recess" are ambiguous since they are supposed in fact to designate "end portions" and not "end surfaces" of the recess [since neither the OE element with its carrier and surrounding casting compound, which are arranged in "one end", nor the optical fibre coupler, which is to be arranged in the "other end", are flat, but rather have a specific length and/or size]. These two expressions are hereinafter interpreted to mean "end portions of the recess".

3. The clarity objection made in point 2.a) above applies likewise to dependent claims 2, 3 and 10, in which the respective expressions "(the opening) for introducing the carrier" and "the receiving and coupling part is filled with the casting compound via this open opening" are hereinafter ignored, since they relate to method steps and not to structural features of the end product.

The clarity objection made in point 2.b) applies likewise to dependent claims 2, 10 and 12.

4. The subject matter of the present claim 1,

interpreted as in point 2 above, does not appear to involve an inventive step with respect to D2, D3 or D1 (PCT Article 33(3)).

- 4.1 D2 discloses (see in particular figures 1-4 and 6-10 and the associated description, and the abstract) an optoelectronic (OE) arrangement for coupling an optical fibre (2, 14) (see the abstract) which likewise has the present features:
- an optoelectronic transmission and/or reception element (30)
 - a carrier (26-2) on which the transmission and/or receiving element (30) is arranged
 - a casting material (24) which surrounds the transmission and/or reception element (30), and
 - a receiving and coupling part (6) which has an opening (52) and a cylindrical recess [see the recess 19, 23 which has a front recess half 19 and a rear recess half 23, the two recess halves 19 and 23 being cylindrical since they are defined by the two "die rods" 42 and 44], wherein
 - the rear half (23) of the recess contains the transmission and/or reception element (30) and the casting material (24) which surrounds the latter, and
 - the front half (19) of the recess serves to receive and couple an optical fibre.

The subject matter of the present claim 1 differs therefrom merely in that

- a) the transmission and/or reception element and the casting material which surrounds the latter are contained in the end portion of the rear recess half [rather than approximately in the middle of the remaining portion of this rear recess half, as in

D2], and

b) the cylindrical recess has a constant diameter across its entire length [rather than having two different diameters as in D2: see, for example, figures 9 and 10 of D2, wherein the diameter of the rear half 23 is greater than that of the front half; or figures 3 and 6 to 8 of D2, wherein the diameter of the rear half 23, in contrast, is less than that of the front half 19].

The above-mentioned differences are, however, purely design and/or sizing variants which appear quite obvious to a person skilled in the art.

The first difference a) is thus wholly trivial. With respect to the second difference b), D2 also shows that the respective diameters of the rear and the front recess halves depend primarily on the size of the OE element (with the carrier and casting compound) and the fibre or fibre plug which are respectively arranged in said rear and front recess halves (see the above analysis). If a person skilled in the art were required to use an OE element (with a carrier and casting compound) and a fibre or a fibre plug of comparable size, he would more or less of necessity use two recess portions of identical diameter (or in other words, a recess with a constant diameter across its entire length) and in this way arrive at an arrangement as per the present claim 1.

- 4.2 D3 likewise discloses (see in particular figure 6 and the associated description) an optoelectronic (OE) arrangement for coupling an optical fibre (see the abstract) which likewise has the present features:

- an optoelectronic transmission and/or reception element (10)
- a carrier (20) on which the transmission and/or reception element (10) is arranged
- a casting material (60) which surrounds the transmission and/or reception element (10), and
- a receiving and coupling part (see the "connector shell" 61) which has an opening (see figure 6) and a recess, this recess being cylindrical at least across part of its length [see the recess inside the "connector shell" 61, which has a front, longer recess portion and a rear, thinner recess portion, the front longer recess portion being cylindrical], wherein
 - one end portion of the recess (see the rear, thinner recess portion) contains the OE element (10) and the casting material (60) which surrounds the latter, and
 - the other "end" (see the front recess portion) serves to receive and couple an optical fibre.

The subject matter of the present claim 1 differs therefrom merely in that, across its entire length, the recess:

- a) is cylindrical [although D3 says nothing about the shape of the rear, thinner recess portion], and
- b) has a constant diameter [instead of having two different cross-sections as in D3].

The above-mentioned differences are, however, purely design or sizing variants which appear quite obvious to a person skilled in the art.

The first difference a) is trivial.

With respect to the second difference b), see the argument made in point 4.1 above, which applies to

D3 too.

- 4.3 D1 discloses (see in particular figures 1 and 2 and the associated description, and the abstract) an OE arrangement for coupling an optical fibre (see the abstract) which likewise has the present features:
- an optoelectronic transmission and/or reception element (4)
 - a carrier (3) on which the transmission and/or reception element (4) is arranged
 - a casting material (28) which surrounds the transmission and/or reception element (4), and
 - a receiving and/or coupling part (1) having an opening (2) and a recess, the recess being partially cylindrical [see the front cylindrical recess portion inside the connection piece 7 which is extended by a rear recess portion inside the housing 1], wherein
 - one end portion of the recess (see the rear recess portion inside the housing 1) contains the OE element (4) and the casting material (60) which surrounds the latter, and
 - the other "end" (7) serves to receive and couple an optical fibre.

The subject matter of the present claim 1 differs therefrom merely in that

- a) the rear recess portion is likewise cylindrical, and
- b) the size of this rear cylindrical recess portion is the same as that of the front cylindrical recess portion.

However, to a person skilled in the art required by certain circumstances to use an OE element and a

fibre or a fibre plug of comparable size arrangement as per D1, it appears obvious that the rear recess portion of identical size to the front cylindrical recess portion and could likewise be used to give this identically sized portion the identical cylindrical shape. To arrive in this way at an arrangement as in present claim 1.

5. The argument that there is no particular D1, D2 or D3 for a person skilled in the art that the recess a constant diameter is not true. To the contrary, it has been sufficiently indicated above that a person skilled in the art would have no alternative but to use two portions of identical diameter (or in other words, a recess with a constant diameter across its length) as soon as he was required to use this element (with a carrier and casting compound) to form a fibre or a fibre plug of comparable size.
6. The subject matter of dependent claims 2 and 21 does not involve an inventive step (Article 33(3)).

The features of claims 2 and 10 interpreted in light of point 3 above are likewise known from D2 (see figure) or D3 (see figure 6).

The features of claims 3 and 17 are likewise known from D1 (see figures 1 to 4).

The features of claim 5 are likewise known from D1 (see figure 2) or D2 (see figures 3 and 7).

The features of claims 6, 8, 11, 13 and 16 are likewise known from D2 (see figures 7 or 9), D1 (see figures 1 and 2) or D3 (see figures 6 and 7).

The features of claims 12 and 14 are likewise known from D3.

The features of claim 20 are likewise known from D2 (see figures 3, 7 and 9).

The features of claims 4, 7, 9, 15, 18 and 21 are trivial to a person skilled in the art.

7. A new claim 1 that contained the features of the present claim 19 in combination with those of the present claims 18, 7, 6, 4 and 1 (and which addressed the objections raised above in point 2) could perhaps be novel and inventive with respect to the documents in question, since none of said documents discloses or suggests the concept of providing the leadframe with ground pins which are inserted into receiving sockets in the electrically conductive receiving and coupling part in such a way as to simultaneously bring about the alignment of the optical transmission and/or reception elements (see the description, page 3, lines 23-30) and ~~guarantee~~ ground shielding with the printed circuit ~~board~~ (see the description, page 8, lines 29-36).